

REMARKS

Applicants have amended Claims 1, 5, 6 and 17 and cancelled Claim 4. Applicants respectfully submit no new matter has been added by the present amendment. Support for the amendment can be found generally throughout the text, specifically at page 6, lines 18-24.

Claim Rejection under 35 U.S.C. § 112

Claims 1-14 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants respectfully traverse this ground of rejection. Applicants have amended Claims to include “wherein the copolymer is not in a blend with other polar olefin copolymers”. Accordingly, Applicants submit the present claims are definite and request withdrawal of this ground of rejection.

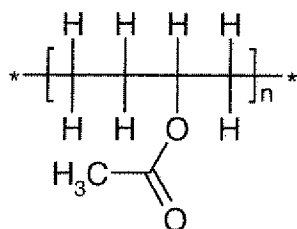
Claim Rejection under 35 U.S.C. § 102(b) and 103(a)

Claims 1-5 and 11-14 are rejected as being anticipated by Tomoyuki et al. (JP 08-23958). And Claims 1-6 and 11-14 stand rejected as being unpatentable as obvious in view of Tomoyuki et al. Applicants respectfully traverse these grounds of rejection.

Applicants submit to anticipate a claim the cited references must teach each and every element of the claimed invention, either explicitly or inherently. And according to the Examiner the pending claims are not novel over Tomoyuki et al., because Tomoyuki et al. teaches a composition comprising 10 to 90% polyamide and 10 to 90% of an ethylene-vinyl acetate polymer.

However, Applicants submit Tomoyuki et al. does not teach each and every element of the claimed invention. Tomoyuki et al. does not teach or suggest the claimed B component but rather the use of an ethylene-vinyl acetate polymer which is saponified. Paragraphs 001 and 005 of Tomoyuki et al. describe the saponified ethylene vinyl acetate polymer as an EVOH. Clearly EVOH is not a vinyl acetate polymer and the

Ethylene-vinyl acetate copolymers as Component B of the present invention are prepared by copolymerization of ethylene and vinyl acetate and have the following formula:


$$\text{*} \left[\begin{array}{cccc} \text{H} & \text{H} & \text{H} & \text{H} \\ | & | & | & | \\ -\text{C} & - & \text{C} & - & \text{C} & - & \text{C}- \\ | & | & | & | \\ \text{H} & \text{H} & \text{OH} & \text{H} \end{array} \right]_n \text{*}$$

As can be seen from the formulae above, both copolymers are clearly different and have different properties. The same holds true for the described polymers obtained through partial saponification as they are different from the non-saponified ethylene-vinyl acetate copolymers and ethylene vinyl-alcohol (saponified ethylene vinyl acetate).

Since at least a part of the ethylene-vinyl acetate copolymer according to Tomoyuki et al. is saponified, Tomoyuki et al. does not comprise one or more olefin-vinyl acetate copolymers, wherein the copolymer is in a pure form, not in a blend with other polar olefin copolymers, since the ethylene-vinylalcohol copolymer obtained after saponification is not an ethylene-vinyl acetate copolymer anymore, but rather another polar olefin copolymer.

The present invention therefore differs from Tomoyuki et al. in at least the aspect of the employment of saponified ethylene-vinyl acetate copolymer having -OH-groups rather than the claimed use of one or more olefin-vinyl acetate copolymers in a pure form.

Further, Applicants submit Tomoyuki et al. differs from the present invention because the olefin vinyl acetate copolymers of the present invention are elastomers whereas the saponified EVA of Tomoyuki et al. is a thermoplastic.

Depending on the amount of vinyl acetate relative to the amount of olefin the olefin-vinyl acetate copolymers may be thermoplastics or elastomers. This is, for example, described in H Meisenheimer et al., Handbook of Speciality Elastomers, Taylor and Francis, New York, 2007, pp 347. In chapter 3.1, especially in Fig. 3 of said reference it is shown that ethylene-vinyl acetate copolymers having a vinyl acetate content of less than 40% by weight are thermoplastics and only ethylene-vinyl acetate copolymers having a vinyl acetate content of from 40 to 80% by weight are elastomers. See Appendix 1.

Since the olefin-vinyl acetate copolymer according to Claim 1 is an elastomer, said copolymer has - in the case of an ethylene-vinyl acetate copolymer – a vinyl acetate content of at least 40% by weight. This vinyl acetate content of at least 40% by weight in ethylene-vinyl acetate copolymers corresponds to a vinyl acetate content of at least 82.2 mole-%. The ethylene content of said copolymers is at most 17.8 mole-%.

According to Tomoyuki et al., the ethylene content in the saponified ethylene–vinyl acetate copolymer (a) is 20 to 60 mole-% and in the saponified ethylene-vinyl acetate copolymer (b) 25 to 65 mole-% (See paragraph 0006 in Tomoyuki et al.). An ethylene content of less than 20 mole-% is according to Paragraph 0006 inferior. The saponified ethylene-vinyl acetate copolymers employed in Tomoyuki et al. are therefore based on thermoplastic ethylene-vinyl acetate copolymers not on elastomeric ethylene-vinyl acetate copolymers. Tomoyuki et al. is therefore not novelty destroying for claim 1 of the present invention.

Since Claims 2 to 10 are directly or indirectly depending on Claim 1 and also claims 11 to 14 refer to Claim 1, Applicants submit that claims 2 to 14 are novel over Tomoyuki et al.

Therefore, Applicants submit Tomoyuki et al. fails to teach each and every element of the claimed invention and accordingly Applicants request withdrawal of this ground of rejection.

Claims 1-3 and 11-16 also stand rejected under 35 USC 103(a) as being obvious in view of Tomoyuki et al. Applicants submit for at least the reasons outlined above Tomoyuki et al. also fails to render the present invention obvious. Tomoyuki et al. does not teach, suggest or motivate one skilled in the art to employ a blend of a polyamide and one or more olefin vinyl acetate copolymers in a pure form and as an elastomer. Further, Applicants submit the teachings of Tomoyuki et al. would not predict to one skilled in the art the use of a small amount of an olefin vinyl-acetate copolymer as an elastomer in pure form would improve the buckling endurance of the claimed composition.

Claim Rejection under 35 U.S.C. § 102(b)

Claims 1-5 and 11-14 stand rejected as being anticipated by Toru et al (JP 05-140368). Applicants respectfully traverse this ground of rejection. Applicants note the Office

Action again presents this rejection twice and believe the Examiner meant the second rejection in paragraph 30 to be under 35 USC § 103(a).

Applicants submit to anticipate a claim, the cited references must teach each and every element of the claimed invention, either explicitly or inherently. And, according to the Examiner, Claims 1 to 3 and 11 to 16 are not novel over Toru et al., because Toru et al. teaches a composition comprising 10 to 90% polyamide and 10 to 90% of an ethylene-vinyl acetate polymer.

However, Applicants submit Toru et al. does not teach each and every element of the claimed invention.

Applicants submit the argumentation above in regard to Tomoyuki et al. directly applies to the present rejection in view of Toru et al. Applicants submit Toru et al. fails to teach the use of a olefin-vinyl acetate as an elastomer and in pure form. Applicants submit Toru et al. teaches the use of a saponified EVA (i.e., EVOH) in combination with a polyamide. Applicants submit, as in Tomoyuki et al. that the saponified EVA of Toru et al. are nearly completely saponified (i.e., comprise OH groups and little or no OAc groups). And, as discussed in detail above, such saponified copolymers are thermoplastics, not elastomers.

Further, as discussed in detail above, the saponified EVA as taught by Toru et al. is not in pure form. Rather, the ethylene-vinyl alcohol copolymer obtained after saponification is not an ethylene vinyl acetate copolymer but, in fact, another polarolefin.

Since Claims 2 to 10 are directly or indirectly depending on Claim 1 and also claims 11 to 14 refer to Claim 1, Applicants submit that claims 2 to 14 are novel over Toru et al.

Therefore, Applicants submit Toru et al. fails to teach each and every element of the claimed invention and accordingly Applicants request withdrawal of this ground of rejection.

Claims 1-6 and 11-14 also stand rejected under 35 USC 103(a) as being obvious in view of Toru et al. Applicants submit for at least the reasons outlined above Toru et al. also fails to render the present invention obvious. Toru et al. does not teach, suggest or motivate one skilled in the art to employ a blend of a polyamide and one or more olefin vinyl acetate copolymers in a pure form as presently claimed. Further, Applicants submit the teachings of Toru et al. would not predict to one skilled in the art the use of a small amount of an olefin vinyl-acetate copolymer as an elastomer in pure form would improve the buckling endurance of the claimed composition.

Claims Rejections under 35 U.S.C. § 103(a)

Claims 1-9 and 11-14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tachi et al. (US Patent No. 5,443,874), and Claim 10 stands rejected under 103(a) as being unpatentable over Tachi et al. in view of Hayashi et al., Nagano, Mito et al. and Orikasa et al. Applicants respectfully traverse this ground of rejection and submits that the present claims are patentable in view of the cited document(s).

According to the Examiner, Claims 1 to 9 and 11 to 14 of the set of claims filed with a reply to the last Office Action, are obvious over Tachi et al. (US 5,443,874).

According to Tachi et al. a hollow multi-layer molding is disclosed comprising a barrier-layer comprising a substance selected from the group consisting of a polyamide resin, a saponified derivative of an ethylene-vinyl acetate copolymer, a thermoplastic polyester and a mixture of at least two of said polyamide resins, said saponified derivative and said thermoplastic polyester. It is very clear for Tachi et al. that the ethylene-vinyl acetate copolymer has to be saponified (see column 6, lines 13, 14, wherein it is mentioned, that preferably not less than 93%, more preferably not less than 96% of the ethylene-vinyl acetate copolymers are saponified.).

The barrier-layer according to Tachi et al. therefore may comprise an ethylene copolymer which contains both acetate and hydroxyl groups attached to the main chain,

wherein the relative amount of these side groups is depending on the degree of saponification, as well as a polyamide resin.

However, according to amended Claim 1 of the present invention, the composition comprises, beside polyamide, one or more olefin-vinyl acetate copolymers as elastomer, wherein the copolymer is in pure form, not in a blend with other polarolefin copolymers. Such another polar olefin copolymer is in Tachi et al. an ethylene copolymer which contains both acetate and hydroxyl groups attached to the main chain.

The present invention according to amended Claim 1 therefore differs from Tachi et al. in that the composition comprising a polyamide and one or more olefin-vinyl acetate copolymers does not comprise an ethylene copolymer which contains both acetate and hydroxyl groups attached to the main chain as disclosed in Tachi et al.

Additionally, the present invention differs from Tachi et al. in the feature that the ethylene-vinyl acetate copolymer which may be employed in Tachi et al. in saponified form has an ethylene content of from 25 to 50 mole-% (col. 6, lines 9 to 11). The ethylene-vinyl acetate copolymers of Tachi et al. (which are further saponified) are therefore thermoplastics and not elastomers as required according to claim 1 of the present invention. Additionally, the saponified ethylene-vinyl acetate copolymers of Tachi et al. are thermoplastics, because of their high crystallinity due to the high number of OH groups.

Further, there is no information in Tachi et al. that the buckling endurance of polyamide is improved by blending polyamide with one or more olefin-vinyl acetate copolymers as elastomer. According to all examples in Tachi et al. not a mixture of polyamide and saponified ethylene-vinyl acetate copolymers is used as barrier-layer, but only one specific polymer (see table 1, especially the footnotes below table 1 defining BR-1, BR-2, BR-3 and BR-4).

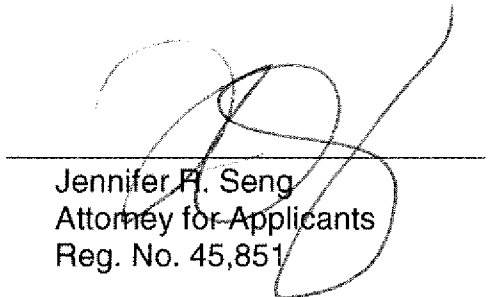
It was therefore not obvious for a person skilled in the art to use a polyamide and one or more ethylene-vinyl acetate copolymers in form of elastomers for an improvement of the buckling endurance of polyamide. Further, there is no information in the prior art that a polyamide is compatible with a non saponified olefin-vinyl acetate copolymer, even with resulting in superior compositions having an improved buckling endurance.

Claims 1 to 9 and 11 to 14 are therefore not obvious over Tachi et al. Applicants submit combination with Hayashi et al., Nagano, Mito et al. and Orikasa et al. also fail to render the present invention as obvious. The further art cited only teaches the use of fillers and provides no motivation to overcome the deficiencies of Tachi et al.

In view of the above amendments, Applicants submit that the claims are in condition for allowance and the Examiner would be justified in allowing them. The USPTO is hereby authorized to charge any fees, including any fees for an extension of time or those under 37 CFR 1.16 or 1.17, which may be required by this paper, and/or to credit any overpayments to Deposit Account No. 50-2527.

Respectfully submitted,

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